CITY OF LAS VEGAS	Public Works Department City Engineering Division Offsite Inspection and Testing Section	Procedure No.: PWOIT – MT 104
	Procedure: Trench Backfill Report	Page 1 of *8*

Revision Number	Prepared By	Reviewed By	Approved By	Date Issued
0	**GGJ**	**GGJ**	**DWM**	**GGJ**
Date	8-11-04	8-24-04	8-30-04	8-30-04
1	**GGJ**	**GGJ**	**TEH**	**GGJ**
Date	7-28-05	8-2-05	8-8-05	8-8-05
2	**GGJ**	**GGJ**	**TEH**	**GGJ**
Date	7-11-06	3-8-07	3-8-07	3-8-07
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CITY OF LAS VEGAS
400 STEWART AVENUE
LAS VEGAS, NEVADA 89101

VOICE 702.229.6011
TTY 702.386.9108
www.lasvegasnevada.gov

DEPARTMENT OF PUBLIC WORKS
CITY ENGINEER DIVISION
Offsite Inspection and Testing Section

City of Las Vegas
Trench Backfill Report
Procedure No. PWOIT-MT 104 Revision *4*

The italicized and underlined sections of this policy note the Revision 4 changes.

1.0 PURPOSE:

1.1 This policy establishes the guidelines by which the City of Las Vegas (CLV) will review and approve a Trench Backfill Report, for wet (sewer, storm drain) utility trenches in the public and private offsite improvement areas. The trench backfill limits for wet utilities, are from the bottom of the utility trench to the top of the street or sidewalk subgrade. The public offsite area is defined from the back of sidewalk to back of sidewalk. The private offsite area is defined from the back of curb to back of curb on private streets. The CLV Quality Assurance (QA) Program is limited to periodic testing of trench backfill for offsite improvements.

1.2 A Final Trench Backfill Report is required to be submitted for review and approval *dependent upon the project Scope of Work.*

NOTE 1: Quality Control (QC) density tests, for the dry utility trench backfill behind curb and gutter, for public and private offsite areas are not required to be submitted in a formal report. A copy of the test data shall be given to the CLV Offsite Inspector for his review /approval.

2.0 REFERENCE CODES AND STANDARDS:

2.1 Associated CLV Procedures:

2.1.1 PWOIT MT – 101 "Submittal of Report".

2.1.2 PWOIT MT – 102 "Type III Pipe Zone Backfill Material Report".

2.1.3 PWOIT MT – 103 "*Utility Trench* Backfill Material Report".

2.2 Clark County Standard Specifications:

2.2.1 Section 105 "Control of The Work", Section 207 "Structural Backfill".

2.2.2 Section 208 "Trench Excavation and Backfill".

2.2.3 Section 704 "Base Aggregates".

2.3 Other:

2.3.1 NRS 338.176, NAC 625.550, the most current ASTM, AASHTO, and NDOT test. Procedures as indicated in applicable sections of the Uniform Standard Specifications.

3.0 STATEMENT OF POLICY:

3.1 Submittal:

3.1.1 The submittal format shall be completed in accordance with the current CLV procedures and in compliance with NRS 338.716 and NAC 625.550 statutes.

3.1.2 The project developer or their representative, the project Quality Control Company (QC) shall submit a transmittal letter *per CLV procedure "PWOIT MT 101"* and Trench Backfill Report to the CLV requesting the review and approval of the report. The report shall be submitted after the completion of the trench backfill operations within the off-site area. The report shall be reviewed and approved prior to preparation of native-in-lieu of Type I material for street Subgrade or the placement of Type I or Type II Aggregate Base material on the street Subgrade.

4.0 REPORTS:

4.1 General Requirements for Report Content:

4.1.1 The report shall include, at a minimum, the following information:

4.1.1.1 Revised reports shall include the date of the report being superseded, as well as the revision date.

4.1.1.2 Project / Permit Name.

4.1.1.3 Project / Permit Number.

4.1.1.4 Project / Permit Plan Number.

4.1.1.5 Referenced reports shall be identified by the accepted QC report issue date and CLV acceptance letter date.

4.1.1.6 The report must be prepared by, or under the direction of, a Professional Engineer registered in the State of Nevada. The report must be signed and stamped by the responsible engineer.

4.1.1.7 Use the appropriate approved project Plan and Profile sheets to determine the specific location for the area being submitted for review and acceptance **for this report**. The locations shall be noted in the text of the report in a similar format as shown below:

Table 1

Street Name	Type of Utility	Station Number		Station Number
			to	
			to	
			to	
			to	

NOTE 2: If street names are revised after a construction phase report has been submitted to the CLV and approved by the CLV, subsequent construction phase reports shall reference the original street name as well as the revised street name.

4.1.1.8 The report shall contain a statement that verifies that the backfill material and backfill operation complies with the recommendations of the project geotechnical report, project plans, specifications, and current CLV policy and procedures.

4.1.1.9 *Use of IQAC approved CLSM mix in Utility trench.*

1. Reference the approved CLSM mix used in the test of the report.

2. Copies of the approved CLSM trip tickets shall be included with the report.

4.1.1.10 *Use of Non Approved IQAC CLSM mix in Utility trench.*

1. Reference the approved CLSM mix used in the test of the report.

2. Copies of the approved CLSM trip tickets shall be included with the report.

3. Inspection reports and testing data shall be included in the report per CLV Procedure "PWOIT MT 103, section 3.5".

4.1.1.11 *Use of Granular or Selected Backfill Material in the Utility Trench. The* compaction test results *shall be typed and* include *the following information* as a minimum (see Attachment No. 1):

1. Test number.
2. Test date.
3. Test location (street name) per project utility profile plan).
4. Test station number (per project utility profile plan).
5. Type of utility (i.e., sewer, gas, storm drain etc.) (see note 3).
6. Test elevation (per project utility profile plan).
7. Depth of fill.
8. Dry Density.
9. Moisture Content.
10. Gauge Serial Number (see note 4).
11. Gauge density/ moisture count for each test (see note 4)
12. Direct transmission depth of test (i.e., 6", 8", or 10" etc.) (see note 4).
13. MDD.
14. Optimum Moisture (MDD.)
15. Test results.
16. Test requirements.
17. Pass / Fail.

NOTE 3: If the density test data is reported on data sheets by different type of utility (i.e., sewer, storm drain, etc.), the type of utility column is not required as shown on Attachment No. 1.

NOTE 4: The "Field Density Test Sheets" referring to this specific information may be attached to the report, in-lieu of these columns on Attachment No. 1.

4.1.1.12 Proctor information per current AASHTO T180 procedure and include a curve for each material type.

4.1.1.13 Plot plan indicating the area being accepted. The accepted area shall be *marked* in such a manner that the area is identifiable on "Xerox" copies.

4.1.1.14 Pit name and proctor information for IQAC approved Type II Aggregate used in the pipe zone.

4.2 Additional Requirements for Interim Report:

4.2.1 Interim (partial area release) reports for specific areas of work (i.e. utility trenches in the interior / exterior areas and / or portions of those areas) are acceptable; however they shall be referenced in the Final Trench Backfill Report.

4.2.2 The report title shall be **"Interim Trench Backfill Report"**.

4.2.3 Referenced CLV approved reports

4.2.3.1 Interim / Final Type III Pipe Zone Material Report.

4.2.3.2 Interim / Final *Utility Trench* Backfill Material Report.

4.2.4 Report information / test data included with approved reports, per section 4.1.1.5, shall not be included with the Final Report *unless otherwise noted.*

4.3 Additional Requirements for Final Report:

4.3.1 This is the **last report**, for this phase of work, if Interim Reports were issued. It is the **only report** if Interim Reports were not issued

4.3.2 The report title shall be **"Final Trench Backfill Report"**.

4.3.3 Referenced CLV approved reports

4.3.3.1 Final Type III Pipe Zone Material Report.

4.3.3.2 Final *Utility Trench* Backfill Material Report.

4.3.3.3 Interim Trench Backfill Report.

4.3.4 Report information / test data included with approved reports, per section 4.1.1.5, shall not be included with the Final Report

5.0 QUALITY CONTROL TESTING:

5.1 *Density Testing*:

5.1.1 The testing shall be performed by Quality Control Company AASHTO Accredited in the procedures being reported. The most current ASTM, AASHTO, NDOT test procedures shall be used. Testing requirements shall be from the applicable sections of the Uniform Standard Specifications and current CLV policies and procedures.

NOTE 5: The requirement for the AASHTO Accreditation is mandatory for all laboratories performing work submitted to the City of Las Vegas, Offsite Inspection and Testing, effective March 1, 2008. Laboratories that are not accredited in the test procedures being submitted shall contact the City of Las Vegas, Offsite Inspection and Testing prior to submitting the test information.

5.2 *Pipe Zone Density Testing*:

5.2.1 *The first density tests for trench backfill to be included in this report, as a minimum, shall have been performed on the top of the last lift of the Pipe Zone backfill(Clark County Standard Specifications subsection 208.01.02) material and meet the requirements of section 5.3.*

5.3 *Final Backfill Density Testing*

5.3.1 Testing determinations shall be made in lots, each lot represents on days backfill production. If the lot exceeds 250 linear feet, the lot shall be divided into a minimum of two (2) sublots and tested to the frequency noted in Table 2. Each sublot shall not exceed 250 linear feet. The Quality Control Company Engineer may require additional density tests, beyond the minimum number required, if they determine there is a need for additional testing. In this case, the additional tests are not required to be located by random numbers.

5.3.2 The location of the field density tests shall be chosen on a random number basis. If requested by CLV, a summary of the information used to determine lot / sublot description and, test elevations shall be completed and shall be included with the submitted report.

NOTE 6: A random number for the length of the lot / sublot is required for the trench test in trenches five (5) feet in width or less. Trenches more than five (5) in width, a random number for width may also need to be determined, verify with the CLV.

5.3.3 Potholing may be used as a method of acquiring test locations **only if approved by the agency,** however, potholing as a general method to obtain test locations shall not be allowed. The sequence of testing in the pothole excavation is from the highest lift downward. All subsequent backfill of the pothole shall be tested for each lift.

Table 2

Area	Test	Procedure	Frequency
Utility Trench	Field Density Test	AASHTO T310	1 / 250 Linear Feet / Lift *

* 250 linear feet is the maximum distance for any lot / sublot. The sublot distances may be less.

Minimum Density Test Probe Depth = 8"
Lift = 12" compacted fill
Minimum 1 test / lift between structures (with less than 250 linear feet between structures)

6.0 EFFECTIVE DATE AND APPROVALS:

EFFECTIVE DATE: July 1, 2010

6-28-10
Tom Hayes, P.E. Date
City of Las Vegas
Land Development / Offsite Inspection and Testing *Manager*

6-28-10
Gary G. Johnson, S.E.T. Date
City of Las Vegas
Construction Testing Supervisor

Attachment No. 1

Typical Trench Density Test Table Format

Test No.	Date	Location	Station	Utility	Test Elevation (ft)	Depth Of Fill (ft)	Dry Density (pcf)	Moisture Content (%)	Gauge Serial No.	Moisture Count	Gauge Count	Depth of Probe	Maximum Dry Density (pcf)	Optimum Moisture Content (%)	Compaction (%)		
															Results	Req'd	P/F

S= Sewer

SD = Storm Drain

PZ = Pipe Zone

PUE = Public Utility Easement